

**PENGARUH IRADIASI SINAR GAMMA COBALT-60 TERHADAP
PERTUMBUHAN DAN HASIL TANAMAN KACANG PANJANG
(*Vigna cylindrica* L.) VARIETAS LOKAL MAGETAN**

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ABSTRAK

Produktivitas kacang panjang menurun sehingga perlu dilakukan upaya untuk meningkatkan produktivitasnya. Upaya yang bisa dilakukan yaitu dengan perakitan varietas unggul melalui program iradiasi sinar gamma. Penelitian bertujuan mengetahui pengaruh iradiasi sinar gamma terhadap pertumbuhan dan hasil tanaman kacang panjang serta mendapatkan lethal dose 50 (LD-50). Penelitian dilakukan di Laboratorium Politeknik Teknologi Nuklir Babarsari dan lahan petani di Magetan, Jawa Timur. Penelitian menggunakan metode Rancangan Acak Lengkap dengan dengan faktor tunggal dan tiga ulangan. Perlakuan yang digunakan yaitu 8 dosis sinar gamma diantaranya 0, 100 Gy, 200 Gy, 300 Gy, 400 Gy, 500 Gy, 600 Gy dan 700 Gy. Data hasil pengamatan dianalisis menggunakan Anova pada taraf 5% dan dilanjutkan dengan DMRT pada taraf 5%. Hasil penelitian menunjukkan bahwa radiasi sinar gamma mempengaruhi perkecambahan benih kacang panjang. Radiasi sinar gamma juga mempengaruhi tinggi tanaman 14 HST, 21 HST, 28 HST, umur berbunga, jumlah polong per tanaman, bobot polong per polong dan bobot polong per tanaman. Lethal dosis 50 (LD 50) radiasi sinar gamma pada tanaman kacang panjang sebesar 710 Gy. Tanpa pemberian sinar gamma dan iradiasi sinar gamma 100 Gy memberikan perkecambahan yang baik, sedangkan pada parameter pertumbuhan dan hasil perlakuan tanpa penyinaran lebih baik dibandingkan dengan perlakuan lainnya

Kata Kunci : Kacang Panjang, Sinar Gamma, Cobalt-60

**EFFECT OF GAMMA COBALT-60 RAY IRRADIATION ON THE
GROWTH AND YIELD OF YARDLONG BEAN PLANTS
(*Vigna cylindrica* L.) LOCAL VARIETY OF MAGETAN**

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ABSTRACT

The productivity of long beans has declined, so efforts need to be made to increase their productivity. One effort that can be made is to assemble superior varieties through a gamma ray irradiation program. The study aimed to determine the effect of gamma irradiation on the growth and yield of long beans and to obtain the lethal dose 50 (LD-50). The study was conducted at the Babarsari Nuclear Technology Polytechnic Laboratory and on farmers' land in Magetan, East Java. The study used a completely randomized design with a single factor and three replicates. The treatments used were 8 doses of gamma rays, including 0 Gy, 100 Gy, 200 Gy, 300 Gy, 400 Gy, 500 Gy, 600 Gy, and 700 Gy. The observation data were analyzed using ANOVA at a 5% level and followed by DMRT at a 5% level. The results showed that gamma radiation affected the germination of long bean seeds. Gamma radiation also affected plant height at 14, 21, and 28 days after sowing, flowering age, number of pods per plant, pod weight per pod, and pod weight per plant. The lethal dose 50 (LD 50) of gamma radiation on long bean plants was 710 Gy. Without gamma radiation and with 100 Gy gamma irradiation, germination was good, while in terms of growth and yield parameters, the untreated plants performed better than the other treatments.

Keywords : Yardlong Beans, Gamma Ray, Cobalt-60